

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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PCT

WRITTEN OPINION
(PCT Rule 66)

		Date of mailing (day/month/year) 12.07.2004
Applicant's or agent's file reference A3232.WO194		REPLY DUE within 1 month(s) and 15 days from the above date of mailing
International application No. PCT/IB 03/03205	International filing date (day/month/year) 14.07.2003	Priority date (day/month/year) 25.07.2002
International Patent Classification (IPC) or both national classification and IPC B31B1/16		
Applicant AZIONARIA COSTRUZIONI MACCHINE AUTOMATICHE...et al		

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
 - I Basis of the opinion
 - II Priority
 - III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV Lack of unity of invention
 - V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI Certain documents cited
 - VII Certain defects in the international application
 - VIII Certain observations on the international application
3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 25.11.2004

Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Johne, O Formalities officer (incl. extension of time limits) Siedsma, Y Telephone No. +49 89 2399-7242	
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I. Basis of the opinion

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, Pages

1-21 as originally filed

Claims, Numbers

1-39 as originally filed

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5. This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees, the applicant has:
 - restricted the claims.
 - paid additional fees.
 - paid additional fees under protest.
 - neither restricted nor paid additional fees.
2. This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:

see separate sheet
3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this opinion:
 - all parts.
 - the parts relating to claims Nos. 1-5,16-19,22-25,29,30,37,39 .

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-4,29,30,37,39
Inventive step (IS)	Claims	5,16-19,22-25
Industrial applicability (IA)	Claims	

2. Citations and explanations

see separate sheet

Re Item IV

1. The separate groups of inventions are:

Group 1, Claims: 1-5,16-19,22-25,29,30,37,39
feed path circumscribes the supporting structure

Group 2, Claims: 6-13,21,31-36
preforming of the forming material

Group 3, Claim : 20
transfer device with gripper

Group 4, Claims: 26-28
welding station located downstream of folding station

Group 5, Claims: 14,15,38
sterilizing the forming material

2. The reasons for which the present application has been deemed to contain 5 groups of inventions which are not linked such that they form a single general inventive concept, as required by Rules 13.1, 13.2 and 13.3 PCT are follows:

3. The prior art has been identified as:

D1: US-A-5069021.

4. The subject-matter of claims 1 to 4, 29, 30, 37 and 39 is not new in the sense of Article 33(2) PCT with respect to prior art D1:

- 4.1. Claim 1:

D1 (the references in parentheses applying to this document) discloses a system for manufacturing containers (9) comprising a supporting structure whereas the system is composed entirely of parts associated with the supporting structure (see fig. 2), namely:

- a forming sector (20, 21, 40) supplied with a continuous strip of forming material (2) used in the preparation of at least one blank (7) from which to fashion a

respective container (9), and establishing a first leg of a feed path followed by the material (see fig. 1, ref. no. 20, 21, 22);

- a transfer device (25) operating downstream of the forming sector, serving to distance the forming material (7) from the forming sector and establishing a second leg of the feed path followed by the material (see fig. 1 and column 7, lines 57 to 62);
- and a shaping sector (8) operating downstream of the forming sector, by which each blank (7) emerging from the forming sector is folded and caused ultimately by means of a fixing operation (70) to assume the shape of the container (9) produced by the folding step, the shaping sector (8) establishing a third leg of the feed path followed by the forming material (see fig. 1, ref. no. 8, 9).

Therefore all features of independent claim 1 are known from D1.

4.2. Claim 30:

D1 also discloses a method of manufacturing containers (9) comprising the steps of:

- forming (20, 21, 40) a succession of blanks (7) from which to fashion respective containers (9), by dividing (6, 42) a continuous strip of forming material (2) into discrete lengths;
- shaping each blank (7) obtained by way of the forming step, in such a way as to assume a definitive and permanent configuration (9), whereas the steps of forming the blanks (7) and shaping the containers (9) are implemented continuously on a single system, without any break in continuity between the forming step and the shaping step (see figs. 1 and 2 as well as column 7, line 27 to column 9, line 4).

Therefore all features of independent claim 30 are known from D1.

4.3. Claims 2 to 4, 29, 37 and 39:

The additional features of dependent claims 2 to 4, 29, 37 and 39 are also known from D1 (see fig. 1, ref. no. 7 to claim 2; fig. 1, ref. no. 8 to claim 3; fig. 1, ref. no. 20, 21, 22, 7, 8 to claim 4; fig. 2, ref. no. 25, 41 and column 9, lines 7 to 8 to claim 29; fig. 3, ref. no. 7, 69, 70 to claim 37; fig. 1, ref. no. 6, 21, 22 to claim 39).

5. The following (potential) special technical features, which can be seen to make a

contribution over the prior art according to document D1, can be identified in the different groups of claims:

- Group 1: the special technical feature of claim 5: feed path circumscribes the supporting structure; the objective problem to be solved by this special technical feature is to provide a compact system for manufacturing containers;
- Group 2: the special technical feature of claims 6 and 31: preforming of the forming material; the objective problem to be solved by this special technical feature is to weaken the structure of the forming material along the crease lines (see page 14, lines 4 to 13);
- Group 3: the special technical feature of claim 20: transfer device with gripper element; the objective problem to be solved by this special technical feature is to provide means for conveying single blanks;
- Group 4: the special technical feature of claim 26: welding station located downstream of folding station; the objective problem to be solved by this special technical feature is to add to the state of the art an alternative shaping sector;
- Group 5: the special technical feature of claim 38: sterilizing the forming material; the objective problem to be solved by this special technical feature is to be able to use the containers for food products;

Neither the special technical features of the five groups of claims nor the objective problems solved can be regarded as the same or corresponding, so that a technical relationship between the subject-matter of the five groups of claims is lacking, and the requirement for unity of invention referred to in Rule 13 PCT is not fulfilled.

Re Item V

6. Since the applicant has neither restricted nor paid additional fees, the international preliminary examination is established on group 1 (claims 1-5,16-19,22-25,29,30,37,39).

7. Reference is made to the following documents:

D1: US-A-5069021
D2: CH-A-413339
D3: US-A-5704541

8. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 to 4, 29, 30, 37 and 39 is not new in the sense of Article 33(2) PCT and the subject-matter of claims 5, 16 to 19 and 22 to 25 does not involve an inventive step in the sense of Article 33(3) PCT.

8.1. Claims 1 to 4, 29, 30, 37 and 39:

(see item IV, 4.1 to 4.3).

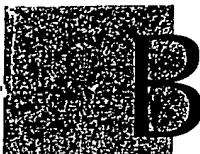
8.2. Claims 5, 16 to 19 and 22 to 25:

The additional features of dependent claims 5, 16 to 19 and 22 to 25 are merely functional design arrangements which are either known from the prior art (see D1 fig. 2, ref. no. 40, 42 to claims 16 to 18; fig. 2, ref. no. 4a, 23, 24, 41 to claims 22 and 23; D2 page 3, left-hand column, lines 30 to 35 and figs 12 to 14 to claims 5, 16 to 19 and 22 to 25; D3 figs 2, 3 ref. no. 18, 26 and column 3, lines 14 to 28 to claims 22 and 24) or come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance.

Consequently, the subject-matter of dependent claims 5, 16 to 19 and 22 to 25 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step.

9. Further remarks:

The reference to claim 12 in claim 23 leads to unclarity and was ignored for the purpose of examination.



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Attn. Mr. Johne, O.

Our Ref: A3232.WO194

Your ref:

Bologna, 1 September, 2004

Re: **International application n. PCT/IB/03/03205 filed on 14 July 2003 in the name of AZIONARIA COSTRUZIONI MACCHINE AUTOMATICHE A.C.M.A. S.p.A.**

Dear Sir,

this is in response to the Written Opinion dated July 12, 2004 pursuant to Rule 66 PCT.

The following documents have been applied by the Examiner:

D1) US A 5069021
 D2) CH A 413339

The Examiner objected to claims 6-13, 21, 31-36, 20, 26-28, 14, 15 and 38 as lacking unity of invention a posteriori.

The Examiner objected to claims 1 to 4, 29, 30, 37 and 39 as lacking novelty over document D1; objected to claims 5, 16 to 19 and 22 to 25 as lacking inventive step in view of document D2 over D1.

AMENDMENTS

The Examiner's objections and references cited have been carefully considered.

A new set of claims has been drafted in order to meet the requirements of Article 33(2), (3) PCT.

Original independent claim 1 has been amended by introducing subject matter from original claims 4 and 5.

Original claims 4 and 5 have been consequently cancelled.



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Original claims 30 to 39 have been withdrawn.

The title and the description have been amended in order to comply with the new set of claims.

Please note that no new matter has been added in amending original claim 1.
In fact, the features included in amended claim 1 are clearly supported by original claims 4 and 5.

NOVELTY

Amended claim 1 now recites:

a system for manufacturing containers, in particular for preserving food products, comprising a supporting structure (2), the system (1) being composed entirely of parts associated with the supporting structure (2), namely:

- a forming sector (3) supplied with a continuous strip (8, 12) of forming material (9) used in the preparation of at least one blank (4) from which to fashion a respective container (5), and establishing a first leg (B) of a feed path followed by the material (9);
- a transfer device (20) operating downstream of the forming sector (3), serving to distance the forming material (9) from the forming sector (3) and establishing a second leg (C) of the feed path followed by the material;
- and a shaping sector (6) operating downstream of the forming sector (3), by which each blank (4) emerging from the sector (3) is folded and caused ultimately by means of a fixing operation to assume the shape of the container (5) produced by the folding step, the shaping sector (6) establishing a third leg (D) of the feed path followed by the forming material (9);
- the first leg (B) of the feed path extending substantially parallel to the longitudinal dimension of the supporting structure (2);
- the second leg (C) of the feed path extending transversely to the first leg (B);
- the third leg (D) of the feed path extending substantially parallel to the first leg (B) and transversely to the second leg (C);

characterised in that

- the legs (B, C, D) are disposed in such a manner that the forming material (9) will follow a feed path (A) extending externally of the supporting structure (2) at least in part, and presenting substantially a letter-C configuration by which the supporting structure is circumscribed at least in part.

Document D1 shows (the references in parenthesis applying to D1, while wording applying to present application) a system for manufacturing containers, in particular for preserving food products, comprising a supporting structure, the system being composed entirely of parts associated with the supporting structure, namely: a forming sector (20, 21, 40) supplied with a continuous strip of forming material (2) used in the preparation of at least one blank (7) from which to fashion a respective container (9), and establishing a first leg of a feed path followed by the material; a transfer device (25) operating downstream of the forming sector (20, 21, 40), serving to distance the forming material (7) from the forming sector and establishing a second leg of the feed path followed by the material; and a shaping sector (8) operating downstream of the forming sector (20, 21, 40), by which each blank (7) emerging from the sector is folded and caused ultimately by means of a fixing operation (70) to assume the shape of the container (9) produced by the

folding step, the shaping sector (8) establishing a third leg of the feed path followed by the forming material; the first leg of the feed path extending substantially parallel to the longitudinal dimension of the supporting structure; the second leg of the feed path extending transversely to the first leg; the third leg of the feed path extending substantially parallel to the first leg and transversely to the second leg.

Document D1 does not show that the legs are disposed in such a manner that the forming material will follow a feed path extending externally of the supporting structure at least in part, and presenting substantially a letter-C configuration by which the supporting structure is circumscribed at least in part.

By contrast, D1 shows that the legs are disposed in such a manner that the forming material will follow a feed path (direction of movement 20) extending *internally* of the supporting structure (see Fig. 2) and presenting a substantially standing in line (see fig. 1 and 2) configuration contained into the structure support.

Document D2 shows a system for manufacturing containers, in particular for preserving food products, comprising a supporting structure, wherein the system is composed entirely of parts associated with the supporting structure. Furthermore, D2 shows a feed path presenting substantially a letter-C configuration.

Document D2 does not show present succession of parts of the system, namely the forming sector (88), the transfer device (87, 87') and the shaping sector (82) are not linked each other as in present claim 1.

Therefore the subject matter of amended claim 1 is clearly new over cited prior art.

INVENTIVE STEP

Document D1 is the document that performs substantially the same function of amended claim 1, so it is considered as the closest prior art.

The subject matter that distinguishes amended claim 1 from closest prior art faces the objective technical problem of minimizing the amount of space required for the system as a whole.

Indeed, by circumscribing the support structure with the feed path which extends externally of the supporting structure and presents a substantially a letter-C configuration, the amount of space required for the system is minimized.

The closest prior art faces the same technical problem (see column 2 lines 52-56). D1 solves the stated problem by disposing the working stations, requisite to produce the containers, inside the apparatus in a standing in line configuration (see figures 1 and 2).

Please note that such a configuration requires more space than the claimed configuration.

Any case, D1 solves the cited technical problem in a different way with respect present claim 1, namely it solves the problem with different technical features.

Document D2 does not face the cited technical problem.



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In fact, since D2 does not disclose nor suggest that the feed path (along which are disposed the working stations) extends externally of the supporting structure and that it circumscribes the supporting structure, it is not obvious solving the problem as it is solved by present claim 1.

Please note that D2 disclosure and figure 12 only show a "letter C" shaped feed path, but this technical feature, even combined with D1, is not sufficient to solve the cited technical problem, since it is lacking a fundamental indication, namely that the feed path extends externally and circumscribes the supporting structure.

Moreover, it is an example of *ex post facto* analysis to provide a feed path which is external and which circumscribes the supporting structure of document D1 on the basis of D2 figure 12. Indeed, the skilled in the art is not driven by document D2 in disposing the feed path around the supporting structure in order to solve the cited technical problem. By contrast, disposing the C-shaped feed path of figure 12 around the supporting structure of document D1 become obvious once present claim 1 has been read.

Since the solution claimed by the present application as amended is not shown nor suggested in any of the prior art references, it is felt that amended claim 1 involves an inventive step over the prior art.

Please note that all groups of inventions are linked by present claim 1 (each original group of claims depends directly or indirectly upon original claims 4 or 5), so they form a single general inventive concept as required by Rules 13.1, 13.2 and 13.3 PCT.

Since claims 2-27 depend directly or indirectly upon new and inventive claim 1, claims 2-27 are felt to be patentable too.

In view of the above amendments and remarks, favorable consideration of application as amended is respectfully requested.

Yours faithfully,

BUGNON S.p.A.
Luciano Lanzoni

Enclosures:

- sheets of amended claims: pages 22 to 33, 22bis and 22ter;
- sheets of amended description: pages 1 and 5.

1

Description

A system and a method for manufacturing containers,
in particular for preserving food products

Technical Field

The present invention relates to a system for the manufacture of containers, in particular for preserving food products, of which the characterizing features are as recited in claim 1 appended.

5 ~~The invention relates also to a method of manufacturing containers, in particular for preserving food products, of which the essential features are as recited in the preamble of claim 30 appended.~~

Background Art

10 More particularly, the invention finds application in the art field concerned with the manufacture of containers such as bottles and cartons and the like, having a structure fashioned from multilayer or coated paper material and utilized for packaging 15 liquid foods or edible products in general, typically milk, fruit juices, yoghurt, mineral water and other such substances.

It is common practice for containers of the type in question to be manufactured on a system consisting in 20 a number of separate machines by which a selected

Disclosure of the Invention

These objects and others besides, which will emerge more clearly from the following specification, are substantially realized in a system for manufacturing containers, in particular for preserving foods, of which the characterizing features are as recited in claim 1 appended.

~~In addition, the stated objects are realized according to the present invention in a method of manufacturing containers, in particular for preserving foods, of which the characterizing features are as recited in claim 30 appended.~~

The invention will now be described in detail, by way of example, with the aid of the accompanying drawings, in which:

- 15 -figure 1 is a schematic illustration of a system for manufacturing containers according to the present invention, viewed in plan;
- figure 2 is a further schematic illustration of the system of figure 1, viewed in elevation;
- 20 -figure 3 shows a continuous strip of forming material with a bonding edge utilized by the system of figures 1 and 2, illustrated fragmentarily in perspective and in a first possible embodiment;
- figure 4 shows a continuous strip of forming material with a bonding edge utilized by the system of figures 1 and 2, illustrated fragmentarily in perspective and in a second possible embodiment;
- 25 -figure 5 is a sectional illustration of a container fashioned from the continuous strip of figure 3;

Claims

1) A system for manufacturing containers, in particular for preserving food products, comprising a supporting structure, and characterized in that it is a system (1) composed entirely of parts associated with the supporting structure (2), namely: a forming sector (3) supplied with a continuous strip (8, 12) of forming material (9) used in the preparation of at least one blank (4) from which to fashion a respective container (5), and establishing a first leg (B) of a feed path followed by the material (9), a transfer device (20) operating downstream of the forming sector (3), serving to distance the forming material (9) from the forming sector (3) and establishing a second leg (C) of the feed path followed by the material, and a shaping sector (6) operating downstream of the forming sector (3), by which each blank (4) emerging from the sector (3) is folded and caused ultimately by means of a fixing operation to assume the shape of the container (5) produced by the folding step, the shaping sector (6) establishing a third leg (D) of the feed path followed by the forming material (9). <insert pages 22bis, 22ter>

2) A system as in claim 1, wherein the forming sector (3) and the shaping sector (6) are arranged in line operationally, so that the path followed by the forming material (9) when advancing between the

1) A system for manufacturing containers, in particular for preserving food products, comprising a supporting structure (2), the system (1) being composed entirely of parts associated with the supporting structure (2), namely:

- a forming sector (3) supplied with a continuous strip (8, 12) of forming material (9) used in the preparation of at least one blank (4) from which to fashion a respective container (5), and establishing a first leg (B) of a feed path followed by the material (9);
- a transfer device (20) operating downstream of the forming sector (3), serving to distance the forming material (9) from the forming sector (3) and establishing a second leg (C) of the feed path followed by the material;
- and a shaping sector (6) operating downstream of the forming sector (3), by which each blank (4) emerging from the sector (3) is folded and caused ultimately by means of a fixing operation to assume the shape of the container (5) produced by the folding step, the shaping sector (6) establishing a third leg (D) of the feed path followed by the forming material (9);
- the first leg (B) of the feed path extending substantially parallel to the longitudinal dimension of the supporting structure (2);
- the second leg (C) of the feed path extending transversely to the first leg (B);

- the third leg (D) of the feed path extending substantially parallel to the first leg (B) and transversely to the second leg (C);

5 characterised in that

- the legs (B, C, D) are disposed in such a manner that the forming material (9) will follow a feed path (A) extending externally of the supporting structure (2) at least in part, and presenting substantially a

10 letter-C configuration by which the supporting structure is circumscribed at least in part.

forming sector (3) and the shaping sector (6) is substantially linear.

3) A system as in claim 2, wherein the shaping sector (6) comprises at least two substantially parallel shaping lines (6a) onto which the forming material (9) emerging from the forming sector (3) is directed.

4) ~~A system as in claim 1, wherein the first leg (B) of the feed path extends substantially parallel to the longitudinal dimension of the supporting structure (2); the second leg (C) of the feed path extends transversely to the first leg (B); and the third leg (D) of the feed path extends substantially parallel to the first leg (B) and transversely to the second leg (C).~~

5) ~~A system as in claim 4, wherein the legs (B, C, D) are disposed in such a manner that the forming material (9) will follow a feed path (A) extending externally of the supporting structure (2) at least in part, and presenting substantially a letter C configuration by which the supporting structure is circumscribed at least in part.~~

6 4) A system as in claims 1 to 5 3, wherein the forming sector (3) comprises: a feed station (7) supplying the forming material (9); a cutting station (19) operating downstream of the feed station (7), by

which the forming material (9) is divided into a
succession of discrete lengths each constituting a
respective blank (4); a scoring station (18)
operating downstream of the feed station (7), by
5 which at least one crease line (4a) is applied to
each length of forming material (9) constituting a
blank (4); and a preforming station (21) operating
downstream of the feed station (7), by which the
forming material (9) is bent initially along the
10 crease line (4a).

7 5) A system as in claim 6 4, wherein the feed
station (7) comprises at least one main supply reel
(10) carrying a coiled continuous strip (8) of the
forming material (9) and rotatable about a respective
15 longitudinal axis (X) in such a way that the
continuous strip (8) of forming material (9) can be
decoiled.

8 6) A system as in claim 7 5, wherein the feed
station (7) comprises at least one auxiliary supply
20 reel (11) carrying a further continuous strip (12) of
the forming material (9) that can be spliced to the
continuous strip (8) of the main reel (10) to
guarantee continuity of the supply of forming
material (9), each supply reel (10, 11) being
25 replaceable, on final depletion of the relative
forming material (9), with a further reel (10, 11)
carrying a fresh supply of the forming material (9).

9 7) A system as in claims 6 to 8 6, where claim 6
is dependent on claim 4 or 5, wherein the first leg
(B) of the feed path (A) followed by the forming
material (9) is established by a plurality of guide
5 elements (13) constituting part of the feed station
(7).

10 8) A system as in claims 7 5 to 9 7, further
comprising a traction device (14) operating by direct
interaction with the forming material (9) at a point
10 downstream of the feed station (7) and serving to
decoil the selfsame material from the relative supply
reel (10, 11).

15 11 9) A system as in claim 10 8, wherein the traction
device (14) comprises a pair of pinch rolls (14a),
positioned mutually tangential and establishing a
passage (14b) through which the forming material (9)
is directed, including at least one roll (14a) that
can be power driven in rotation to the end of
advancing the forming material (9) through the
20 passage (14b) of the device (14).

25 12 10) A system as in claim 10 8 or 11 9, further
comprising at least one tensioning device (16)
operating upstream of the traction device (14) and in
such a manner that the segment of forming material
(9) extending downstream of the selfsame device (16)
is subjected to a predetermined longitudinal tension.

13 11) A system as in claim 12 10, wherein the
tensioning device (16) comprises at least one pair of
pinch rolls (16a), positioned mutually tangential and
establishing a passage (16b) through which the
5 forming material (9) is directed, including at least
one roll (16a) subjected to a braking action when in
rotation in such a way as to tension the forming
material (9) advancing through passage (16b) of the
device (16).

10 14 12) A system as in claims 5 1 to 13 11,
comprising at least one sterilizing device (17)
operating along the feed path (A) followed by the
forming material (9) and serving to debacterialize
the selfsame material.

15 15 13) A system as in claim 14 12 where dependent on
claim 12, wherein the sterilizing device (17)
operates on the forming material (9) at a point
between the tensioning device (16) and the traction
device (14).

20 16 14) A system as in claims 5 1 to 15 13, wherein
the scoring station (18) is positioned to operate at
a point along the feed path (A) followed by the
forming material (9), between the feed station (7)
and the cutting station (19).

25 17 15) A system as in claim 16 14, wherein the
scoring station (18) comprises at least one press
(18a) presenting mutually opposed dies (18b) offered
to the two faces of the forming material (9), capable

of alternating between an idle position in which the dies (18b) are distanced from the forming material (9) interposed between them, and an operating position in which they are brought together forcibly against the forming material (9) in such a way as to generate the crease line (4a).

16) A system as in claim 15, wherein the cutting station (19) comprises at least one blade (19a) positioned to operate in close proximity to the scoring station (18) in such a way that the forming material (9) can be cut immediately adjacent to the press (18a), capable of alternating between an idle position distanced from the forming material (9), and an operating position of engagement with the selfsame material (9), in which a blank (4) is separated.

17) A system as in claim 16, wherein the blade (19a) of the cutting station (19) can be timed to alternate between the idle position and the operating position synchronously with the movement of the press (18a) of the scoring station (18) between the relative idle position and operating position, in such a manner that the press (18a) of the scoring station (18) and the blade (19a) of the cutting station (19) are made to engage the advancing forming material (9) simultaneously.

18) A system as in claims 4 1 to 17, wherein the transfer device (20) comprises at least one

gripper element (20b) serving to take up each blank (4) of forming material (9) released from the cutting station (19), and capable of movement along the second leg (C) of the feed path between the cutting station (19) and the shaping sector (6) to the end of advancing each successive blank (4).
5

~~21~~ 19) A system as in claims ~~6~~ 4 to ~~20~~ 18, wherein the prefolding station (21) operates at a point on the second leg (C) of the feed path downstream of the cutting station (19), in such a manner as to initiate a bend in the length of forming material (9) constituting each blank (4) along the relative crease line (4a) generated by the scoring station (18).
10

~~22~~ 20) A system as in claims ~~5~~ 1 to ~~21~~ 19, further comprising a finishing device (22) associated with the feed station (7) and designed to operate on at least one bonding edge (4b) of the advancing forming material (9) in such a way that the bonding edge of the single blank (4) is rendered suitable for positioning on the inside of the relative container (5).
15
20

~~23~~ 21) A system as in claim ~~22~~ 20 where dependent on claim ~~12~~ 10, wherein the finishing device (22) operates between the tensioning device (16) and the traction device (14).
25

~~24~~ 22) A system as in claim ~~22~~ 20 or ~~23~~ 21, wherein the finishing device (22) comprises: seam-folding

means by which the bonding edge (4b) is bent double along its length in such a way that the bonding edge (4b) of each blank will present a treated portion directed toward the inside of the relative container 5 (5); also fixing means by which to secure the bonding edge (4b) in the bent configuration.

25 23) A system as in claim 22 20 or 23 21, wherein the finishing device (22) comprises application means by which to lay a fillet of treated material (23) 10 over the raw edge of the advancing material (9), so that the bonding edge (4b) of each blank will be covered by a layer of material suitable for positioning on the inside of the relative container (5).

15 26 24) A system as in claims 1 to 24 19, wherein the shaping sector (6) comprises: a folding station (24) at which each blank (4) is bent along the crease 20 lines (4a) in such a way as to take on the shape of the container (5) being manufactured, and a sealing or welding station (25) located downstream of the folding station (24), where each blank (4) is secured in the configuration presented on emerging from the folding station (24) to assume the definitive shape of the relative container (5).

25 27 25) A system as in claim 26 24, wherein the sealing or welding station (25) comprises at least one sealer or welder such as will fix each blank (4)

in the definitive configuration of the manufactured container (5).

28 26) A system as in claim 26 24 or 27 24, further comprising an assembly station (26) operating between 5 the folding station (24) and the sealing or welding station (25) and serving to apply at least one neck (5a) to each folded blank (4) emerging from the folding station (24), wherein each neck (5a) is fixed to the folded blank (4) at the sealing or welding station (25) through the agency of the sealer or welder.

29 27) A system as in claims 4 1 to 28 26, further comprising feed means associated with the supporting structure (2) and serving to guarantee the movement 15 of the forming material (9) between the stations (7, 18, 19, 21, 24, 25) of the system (1), wherein such means comprise the transfer device (20) and cause the forming material (9) to pass from one station (7, 18, 19, 21, 24, 25) to the next substantially at a 20 predetermined and uniform tempo.

30) ~~A method of manufacturing containers, in particular for preserving food products, comprising the steps of: forming a succession of blanks (4) from which to fashion respective containers (5), by dividing a continuous strip (8, 12) of forming material (9) into discrete lengths; shaping each blank (4) obtained by way of the forming step, in~~

such a way as to assume a definitive and permanent configuration, characterized in that the steps of forming the blanks (4) and shaping the containers (5) are implemented continuously on a single system (1),
5 without any break in continuity between the forming step and the shaping step.

31) A method as in claim 30, wherein the step of forming the blanks (4) comprises the single steps of causing a continuous strip (8, 12) of forming material (9) to advance along a feed path; scoring the forming material (9) along at least one crease line (4a) occupying a portion of the material (9) that will ultimately provide a blank (4); cutting the continuous strip (8, 12) of the forming material (9) to separate at least one discrete length constituting a blank (4); bending the forming material (9) of each blank (4) along the crease lines (4a).
10
15

32) A method as in claim 31, wherein the steps of scoring and of cutting the forming material (9) are implemented simultaneously.
20

33) A method as in claim 31, wherein the step of folding the forming material (9) of each blank (4) is implemented after the scoring and cutting steps.

34) A method as in claim 31, further comprising a finishing step, preceding the scoring step, by which at least one bonding edge (4b) of the continuous
25

~~strip of forming material (9) is prepared in such a way as will render it suitable for positioning on the inside of the relative container (5).~~

5 35) A method as in claim 34, wherein the step of preparing the bonding edge (4b) comprises the single steps of: folding the edge (4b) double longitudinally against the face of the material (9) opposite the face that will be located ultimately on the inside of the container (5), to produce two thicknesses of material breasted fully in contact; securing the two thicknesses of folded material permanently together so that the external surfaces of the double folded bonding edge (4b) will be offered ultimately to the inside of the container (5).

15 36) A method as in claim 34, wherein the step of preparing the bonding edge (4b) comprises the step of applying at least one fillet (23) of treated material to the raw edge of the forming material (9) along its full length, so that the bonding edge (4b) will be covered entirely by a portion of material suitable 20 for positioning on the inside of the relative container (5).

25 37) A method as in claims 30 to 36, wherein the step of shaping each blank (4) to produce a respective container (5) comprises the single steps of: bending the blank (4) further along the crease line (4a) to obtain the definitive shape of the container (5);

~~fixing each blank (4) in the configuration produced by the further bending step.~~

5 ~~38) A method as in claims 30 to 37, further comprising at least one step of sterilizing the forming material (9) advancing along the feed path.~~

10 ~~39) A method as in claims 30 to 38, wherein the forming material (9) is caused to advance at a predetermined rate of feed in such a way that different processing steps will be performed on the selfsame material (9) substantially at the same tempo.~~

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